

WE CLAIM:

1. A tumor-specific gene construct, which comprises a rat Hex II promoter in a suitable vector, wherein said promoter is selectively activated in tumor cells as compared with normal cells.

2. The gene construct of claim 1, which further comprises LacZ or HSV Tk.

3. The gene construct of claim 1, wherein said vector is selected from one of a basic expression vector, a shuttle plasmid, an adenovirus type 5 recombinant vector or a lipid-based delivery system.

4. A vector for use in selective gene expression in a tumor cell, said vector comprising a rat Hex II promoter that is selectively activated in tumor cells as compared with normal cells.

5. A method for a tumor-selective expression of a gene in a cell comprising inserting in said cell a gene construct comprising said gene operably linked to a tumor-specific rat Hex II promoter, whereby said rat Hex II promoter is selectively activated in tumor cells as compared with normal cells.

6. The method of claim 5, wherein said gene construct is inserted in said cell *in vitro*.

7. The method of claim 5, wherein said gene construct is inserted in said cell *in vivo*.

8. The method of claim 5, wherein said gene construct is inserted in an adenovirus type 5 recombinant vector or in a lipid-based delivery system.

9. The method of claim 5, wherein said gene encodes an enzyme that converts an otherwise non-toxic prodrug into its active form, wherein said method further comprises exposing said tumor.

10. The method of claim 9, wherein said gene is HSV Tk or Cytochrome P-450TM 2B1.

11. The method of claim 10, wherein said gene is HSV Tk and wherein said prodrug is ganciclovir.

12. The method of claim 10, wherein said gene is Cytochrome P-450TM 2B1 and wherein said prodrug is cyclophosphamide, penicillin, amidase or β -lactamase.

13. The gene construct of claim 1, wherein said construct is pHexII4557-CAT as set forth in Fig. 1.

14. The tumor-specific Hex II gene construct of claim 2, wherein said tumor cells are human tumor cells.

15. A tumor-specific Hex II gene construct comprising a rat Hex II promoter operatively linked to a gene and a vector selected from one of a basic expression vector, a shuttle plasmid, an adenovirus type 5 recombinant vector or a lipid-based delivery system.

16. The tumor-specific Hex II gene construct of claim 15, wherein said rat Hex II promoter is provided in a negative orientation relative to a polycloning site of said vector.

17. The tumor-specific Hex II gene construct of claim 3 for use in selective expression of a gene in human tumor cells.

18. The tumor-specific Hex II gene construct of claim 15 for use in selective expression of a gene in non-human tumor cells.

19. The gene construct of claim 15, wherein said vector is p Elsp1B and said construct is p Elsp1BHex-LacZ as set forth in Fig. 2.

20. The gene construct of claim 15, wherein said vector is p Elsp1B and said construct is p Elsp1BHex-TK as set forth in Fig. 3.

21. A kit adapted to provide the tumor-specific gene construct of claim 1.

22. The kit of claim 21 for use in screening tumor specific gene expression *in vitro*.

23. The gene construct of claim 3, wherein said vector is an AdHexTK.

24. The gene construct of claim 3, wherein said vector is AdHexLacZ.

